

**WHAT IS CLAIMED IS:**

1           1.       A method for allocating a plurality of resources in an electronic  
2 system, comprising:  
3           allocating a first group of one or more of the resources in accordance with first  
4           requests for the resources, the first group being allocated for a  
5           particular time period; and  
6           subsequently allocating a second group of one or more of the resources for the  
7           particular time period in accordance with regular requests, the first and  
8           second group of resources being mutually exclusive.

1           2.       The method as recited in claim 1 wherein the resources requested are  
2 data paths through a communication network.

1           3.       The method as recited in claim 2 further comprising:  
2           receiving the first requests for the first group of resources in a centralized  
3           scheduler, the centralized scheduler residing in one of a plurality of  
4           requesters on the communication network; and  
5           receiving the regular requests at a centralized arbiter separate from the  
6           centralized scheduler.

1           4.       The method as recited in claim 1 wherein the first requests include  
2 requests for one or more resources on a periodic basis.

1           5.       The method as recited in claim 4 wherein the first requests for one or  
2 more resources on a periodic basis are for transfer of at least one of multicast data and  
3 isochronous data.

1           6.       The method as recited in claim 4 wherein the regular requests include  
2 non-periodic data.

1           7.       The method as recited in claim 1 wherein the first requests are for  
2 transfer of at least one of multicast data and isochronous data.

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1           8.       A network system comprising:  
2           a data transport medium attached to a plurality of sources and a plurality of  
3           targets;  
4           an arbiter coupled to receive first requests for transfers from one or more of  
5           the sources to one or more of the targets during a time slot on the data  
6           transport medium and coupled to receive regular requests from the  
7           sources for transfers from one or more of the sources to one or more of  
8           the targets during the time slot, the arbiter allocating the targets to the  
9           sources in accordance with the first requests and then in accordance  
10          with the regular requests.

1           9.       The network system as recited in claim 8 wherein the first requests are  
2           supplied to the arbiter as a precalculated schedule.

1           10.      The network system as recited in claim 9 wherein the precalculated  
2           schedule supplied to the arbiter is always conflict free.

1           11.      The network system as recited in claim 9 further comprising a  
2           centralized scheduler, responsive to preallocation requests for pre-allocated slots on  
3           the data transport medium to generate the precalculated schedule for the preallocation  
4           requests.

1           12.      The electronic system as recited in claim 11 wherein the centralized  
2           scheduler is implemented as software executable on a node coupled as one of the  
3           sources on the network system.

1           13.      The network system as recited in claim 9 wherein the precalculated  
2           schedule includes a scheduled transfer of isochronous traffic.

1           14.      The network system as recited in claim 13 wherein the precalculated  
2           schedule includes a scheduled transfer of periodic traffic.

1           15.     The network system as recited in claim 9 wherein the precalculated  
2     schedule includes a scheduled transfer of multicast data in which the data is  
3     transferred from a single source to a plurality of targets.

1           16.     The network system as recited in claim 15 wherein the multicast data is  
2     part of a scheduled periodic multicast transfer.

1           17.     The electronic system as recited in claim 8 wherein the transport  
2     medium includes a synchronous switch.

1           18.     The network system as recited in claim 8 wherein the arbiter receives  
2     preallocation requests for pre-allocated slots and regular requests for slots on the data  
3     transport medium, the arbiter giving priority to preallocation requests in allocating  
4     resources.

1           19.     The network system as recited in claim 18 wherein the arbiter receives  
2     a vector including the preallocated requests and the regular requests from the sources  
3     on the network.

1           20.     The network system as recited in claim 19 wherein the sources receive  
2     the preallocated requests from a centralized scheduler of the preallocated requests.

1           21.     An arbitration apparatus for arbitrating requests from a plurality of  
2     requesters for a plurality of resources, comprising:  
3                 means for receiving regular requests for resources from the requesters;  
4                 means for receiving a precalculated schedule; and  
5                 means for allocating resources by giving requests represented in the  
6                         precalculated schedule priority over the regular requests in allocating  
7                         resources.

1           22.     The arbitration apparatus as recited in claim 21 wherein the resources  
2     are input and output nodes of a communication network and the transport mechanism  
3     includes a network switch.

1           23.     A method for allocating a plurality of resources in a communication  
2 network, comprising:  
3           during a first arbitration phase, reserving a first portion of the resources for a  
4           particular time period on the network in response to requests for  
5           scheduled transfers;  
6           during a second arbitration phase allocating a second portion of the resources  
7           in response to regular requests; and  
8           transferring data across the communication network according to the  
9           allocating of resources.

1           24.     The method as recited in claim 23 wherein the first portion is reserved  
2 in a scheduler separate from an arbiter, the arbiter allocating the second portion, the  
3 scheduler providing a schedule to the arbiter indicating the reserved first portion.

1           25.     The method as recited in claim 24 wherein the schedule is guaranteed  
2 not to have conflicts.

1           26.     The method as recited in claim 24 wherein the schedule has conflicts in  
2 requests for the first portion of resources.

1           27.     The method as recited in claim 23 wherein the resources requested are  
2 slots in the communication network connecting an input port to one or more output  
3 ports in a network switch.

1           28.     The method as recited in claim 23 wherein the regular requests are for  
2 resources during a single slot in the communication network and wherein the requests  
3 for scheduled transfers include requests for periodic slots on the network.

1           29.     The method as recited in claim 28 wherein the requests for periodic  
2 slots are for transfer of at least one of multicast data and isochronous data.

- 1           30.     The method as recited in claim 28 wherein the first portion of the
- 2 resources reserved are for transferring at least one of multicast data and isochronous
- 3 data across the communication network.

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